PATENT SPECIFICATION

553,561

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PROVISIONAL SPECIFICATION

Production of Plastics having a Paper Base

We, JOHN HILL WATSON and HUGH EDWARD ANDERSON, both of British Nationality, and both of Linwood, Renfrewshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to the production of plastics having a paper base.

According to the invention we may mix with fibres to be converted into paper, in a plant preceding the papermaking machine proper, porous or non-porous sand or relatively small gravel or chips or kieselguhr or mineral grit or emery or the like.

Alternatively, we may incorporate sand or gravel or the like between plies of paper on a multiwire or multidrum machine at the semi-wet stage, or we may incorporate sand or gravel or the like at any stage between said wires or drums and the drying part; or we may incorporate sand, gravel or the like between finished sheets of paper whether in the doped or the undoped state, that is, the resinated or similarly treated state or not, before pressing into a plastic sheet or mould.

By the treatment described we increase the flow and the tensile and binding properties of the plastic material. With the use of sand or gravel or the like there is developed between the plies a key which prevents lateral delamination and multiplies the resistance to shearing.

Dated this 24th day of June, 1941.

CRUIKSHANK & FAIRWEATHER,
29, St. Vincent Place, Glasgow, C.1, and
29, Southampton Buildings, London, W.C.2,
Agents for the Applicants.

COMPLETE SPECIFICATION

Production of Plastics having a Paper Base

We, JOHN HILL WATSON and HUGH EDWARD ANDERSON, both of British Nationality, and both of Linwood, Renfrewshire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the production of plastics having a paper base, and having a laminar structure, the laminæ being resinated.

Such laminated plastics are well known in the art.

According to the invention, we incorporate gritty mineral material between adjoining laminæ or plies before or after resination of the laminæ or plies, and before thermosetting of the resin.

In practice, we may incorporate porous sand, or small chips or mineral grit or emery of a particle size of about the same order as that of sea sand, having sufficient porosity to absorb a small percentage of the resin constituent, between the formed plies of paper on a multi-wire or multi-drum machine at the semi-wet stage before or after impregnation of the plies with a solution of the plastic constituent, i.e., a solution of the ingredients of a thermosetting synthetic resin such as for instance urea formaldehyde, or between finished plies of paper in the resinated but uncured state before pressing into a multiple-ply plastic sheet, or before moulding the plies of resinated paper into a shaped product which is finally cured by polymerisation of the synthetic resin by any of the usual methods.

The percentage by weight of gritty mineral material to the paper is of the order of 3 to 5%. That is, there would be sprinkled on the top surface of the lower sheet of a two-ply sheet sufficient gritty material to weigh about 3 to 5% of the weight of two paper plies.

The thickness of each ply would be not less than 2½ mils and not more than 4½ mils.

The total thickness of the final product

[Price 1/-]

would not exceed, say 3/16".

The proportion by weight of synthetic resin to paper would be not more than 42% and not less than 15%.

The pulp used is similar to that used in the manufacture of Kraft paper.

With the use of sand or the like there is developed between the plies or laminæ a key which prevents delamination and multiplies the resistance to shearing.

It has previously been proposed to add sand, chips, Kieselguhr, mineral wool and the like to materials to be converted into paper. Another previous proposal is to incorporate fillers such as asbestos fibres, quartz meal, and mica dust, for example, in products made of paper in which synthetic resin is also incorporated.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In the manufacture of plastics having a paper base and of laminar structure the step of incorporating gritty mineral material between the laminæ or plies, before or after resination of the laminæ or plies, and before thermosetting of the resin.

2. Thermoset plastics having a paper base and of laminar structure, incorporating gritty mineral material between the resinated laminæ or plies, the resin being thermosetting.

Dated this 23rd day of June, 1942.

CRUIKSHANK & FAIRWEATHER,
29, St. Vincent Place, Glasgow, and
29, Southampton Buildings, London,
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Agents for the Applicants.

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